

CLAIMS

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1. A method in a wireless communication system for determining a location of a mobile station (MS), the method comprising the steps of:
- 5 obtaining and storing location information corresponding to a target MS in a plurality of reporting devices and in a location server of the wireless communication system;
- defining a subset of the plurality of reporting devices;
- eliciting the location information corresponding to the target MS
- 10 from the subset; and
- combining portions of the location information to determine the location of the target MS.
2. The method of claim 1,
- 15 wherein the location of each of the plurality of reporting devices is known to at least one of the reporting device and the location server, and
- wherein the defining step comprises the step of defining the subset to include the plurality of reporting devices whose locations are less than a
- 20 predetermined distance from the target MS, as estimated based upon the location information.
3. The method of claim 1, wherein the defining step comprises the step of
- defining the subset to include all the plurality of reporting devices
- 25 within range of one of a cell and an area, in which the target MS was last located.
4. The method of claim 1, wherein the defining step comprises the steps of:
- defining a time period; and
- defining the subset to be all reporting devices which obtained location information corresponding to the target MS during the time period.
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5. The method of claim 1, wherein the defining step is performed in a portion of the wireless communication system exclusive of the plurality of reporting devices.

5 6. The method of claim 1, wherein the defining step is performed in the plurality of reporting devices according to a set of subset-selection rules.

7. The method of claim 1, wherein the eliciting step comprises the steps of:
identifying the target MS to the subset; and
10 requesting the subset to report the location information corresponding to the target MS.

8. The method of claim 1,
wherein the location information includes a time stamp identifying
15 when the target MS was at a reported location, and
wherein the combining step comprises the step of extrapolating a current location of the target MS from a last reported location and time and at least one of another reported location and time, and a reported velocity.

20 9. The method of claim 1, wherein the obtaining and storing step comprises the steps of:
communicating between a reporting device and the target MS over a short-range link; and
storing the location of the reporting device as the location of the
25 target MS.

10. The method of claim 1, further comprising in a reporting device the steps of:

receiving a request to report the location information corresponding to the target MS; and

5 attempting to contact the target MS to determine the location of the target MS, in response to receiving the request.

11. A location server in a wireless communication system for determining a location of a mobile station (MS), the location server comprising:

10 a communication interface;

a processor coupled to the communication interface for controlling the communication interface to communicate with a target MS and with a plurality of reporting devices to obtain location information corresponding to the target MS; and

15 a database coupled to the processor for storing the location information,

wherein the processor is programmed to:

define a subset of the plurality of reporting devices;

20 elicit the location information corresponding to the target MS from the subset; and

combine portions of the location information to determine the location of the target MS.

12. The location server of claim 11,

25 wherein the location of each of the plurality of reporting devices is known to at least one of the reporting device and the location server, and

wherein the processor is further programmed to define the subset to include the plurality of reporting devices whose locations are less than a predetermined distance from the target MS, as estimated based upon the location
30 information.

13. The location server of claim 11, wherein the processor is further programmed to define the subset to include all the plurality of reporting devices within range of one of a cell and an area, in which the target MS was last located.

5 14. The location server of claim 11, wherein the processor is further programmed to:

identify the target MS to the subset; and

request the subset to report the location information corresponding to the target MS.

10 15. The location server of claim 11,
wherein the location information includes a time stamp identifying when the target MS was at a reported location; and

15 wherein the processor is further programmed to extrapolate a current location of the target MS from a last reported location and time and at least one of another reported location and time, and a reported velocity.

16. A reporting device in a wireless communication system for determining a location of a mobile station (MS), the reporting device comprising:

20 a processor for controlling the reporting device, the processor comprising a memory; and

a transceiver coupled to the processor for cooperating with the processor to communicate with a target MS for obtaining and storing in a memory location information corresponding to the target MS,

25 wherein the processor is programmed to cooperate with the transceiver to:

receive from a location server of the wireless communication system a message eliciting the location information corresponding to the target MS from a subset of a plurality of reporting devices; and

30 communicate the location information to the location server when the reporting device is a member of the subset.

17. The reporting device of claim 16 further comprising
a location determining element coupled to the processor for
determining the location of the reporting device,
wherein the processor is further programmed to:
5 control the transceiver to limit communication range between the
reporting device and the target MS to that of a short-range link;
communicate with the target MS; and
store the location of the reporting device as the location of the target
MS.

18. The reporting device of claim 16, wherein the processor is further
programmed to:
receive a request to report the location information corresponding to
the target MS; and
15 attempt to contact the target MS to determine the location of the
target MS, in response to receiving the request.

19. The reporting device of claim 16, wherein the reporting device is a
mobile wireless device similar to the target MS.

20. The reporting device of claim 16, wherein the reporting device is a fixed,
wired device.